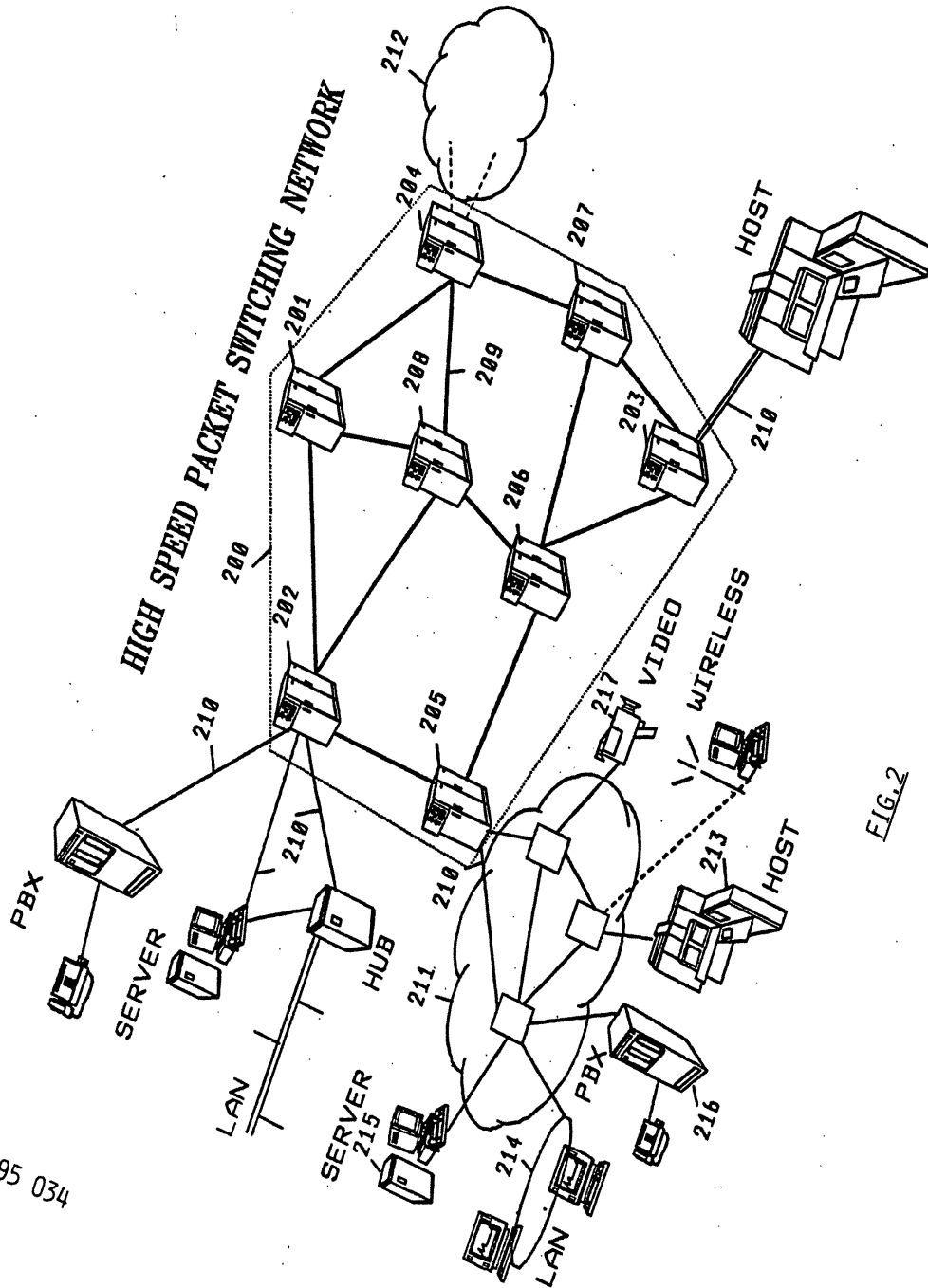


FIG.1



HIGH SPEED PACKET SWITCHING NODE

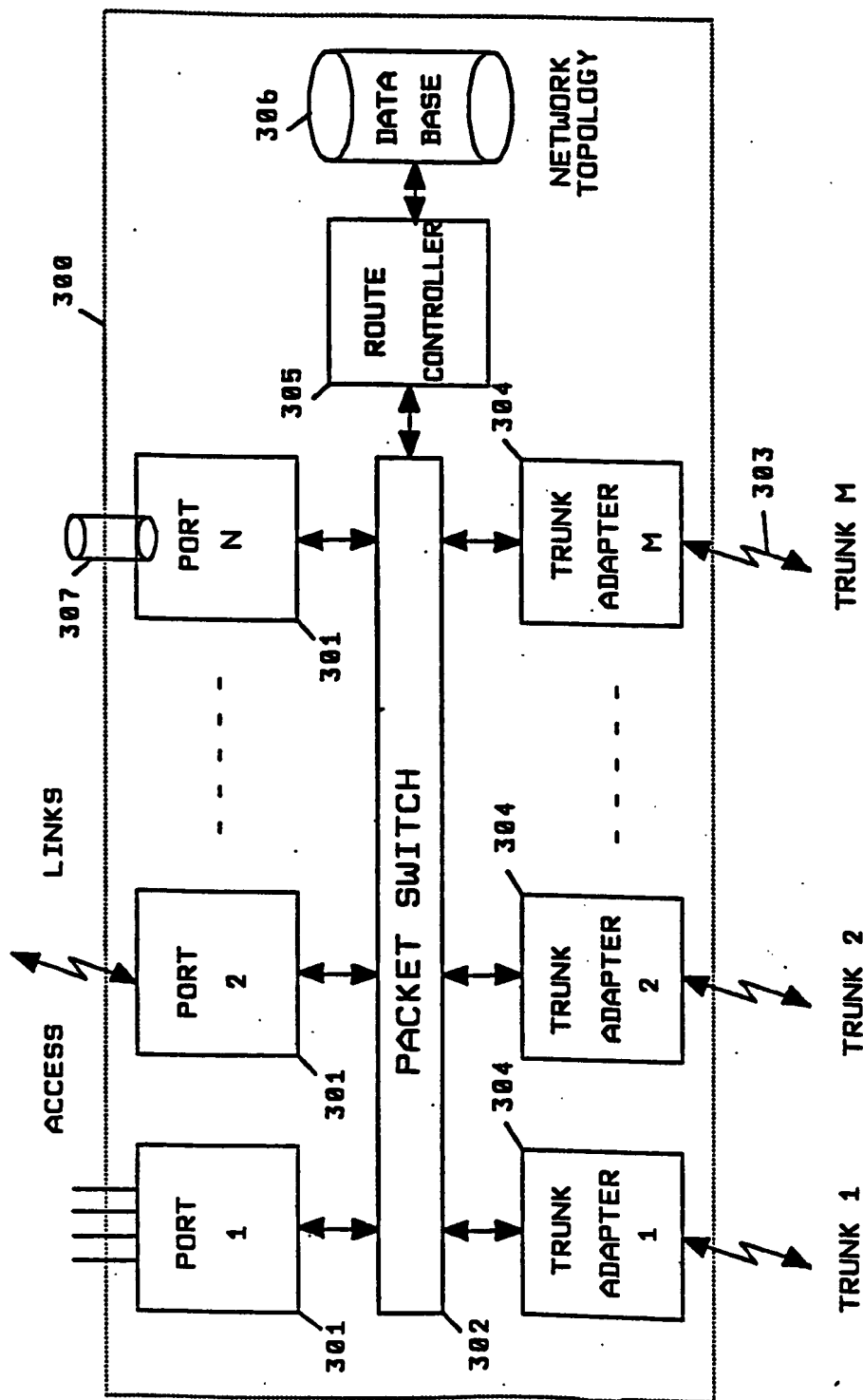


FIG.3

**ALTERNATE
PATH
DATABASE (APD)**

Link table

420

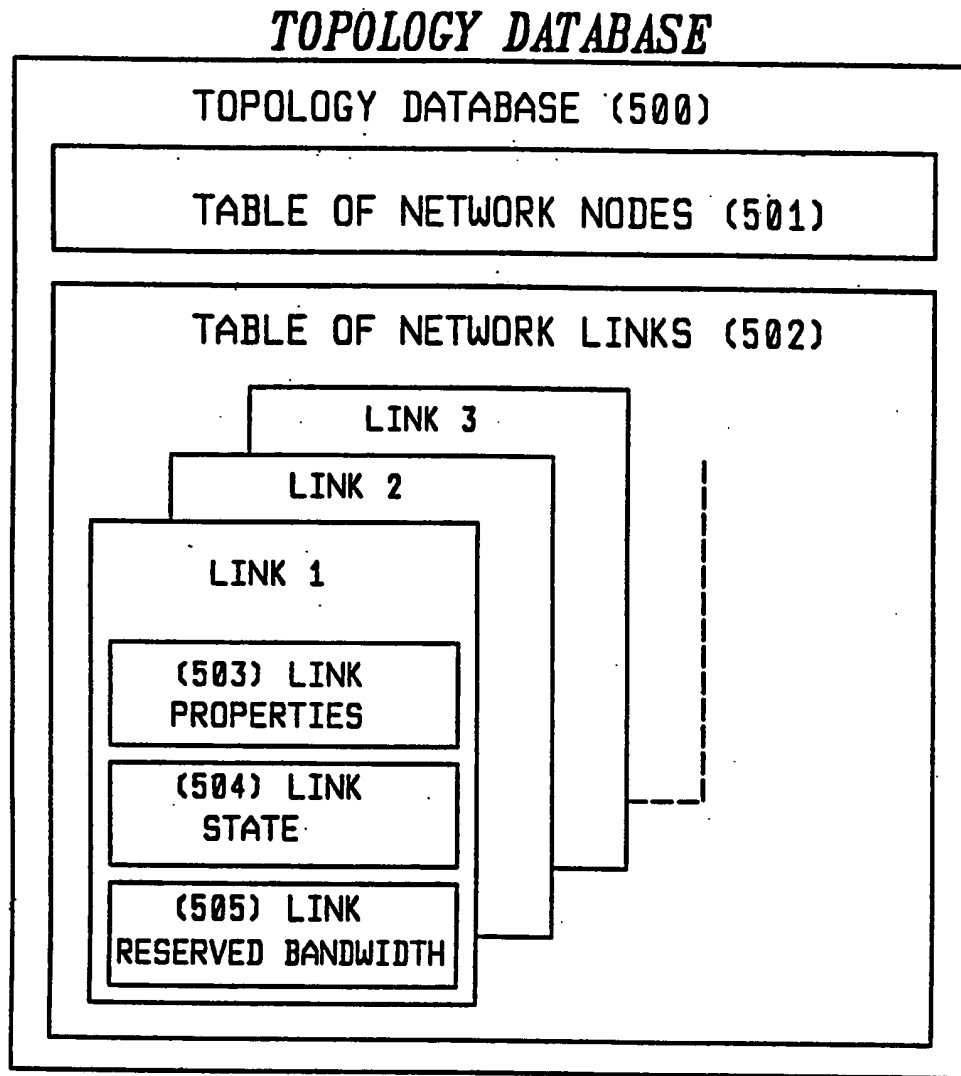
	link k	link l	link n....
link identifiers (422)			
link characteristics (423)			
C (bps)			
rf (%)			
\hat{C}_R (bps)			
M_{NR} (bps)			
\hat{C}_T (bps)			
mps (bytes)			
parent path (424)			

410

Path table

	path 1	path 2	path 3 ...
parent link (416)	link i		
destination node (412)	node B		
link list (411)	link k link l link m		
path characteristics (413)			
max packet size	512 bytes		
max delay	20 ms		
jitter	20 ms		
loss probability	10^{-6}		
hopcount	2		
bandwidth reservation (414)	10 Mbps		
bandwidth used	5 Mbps		
per link	15 Mbps		
remaining available bandwidth on path	20 Mbps		
list of rerouted connections (415)	conn. i conn. j conn. r conn. s		

FIG.4

FIG.5

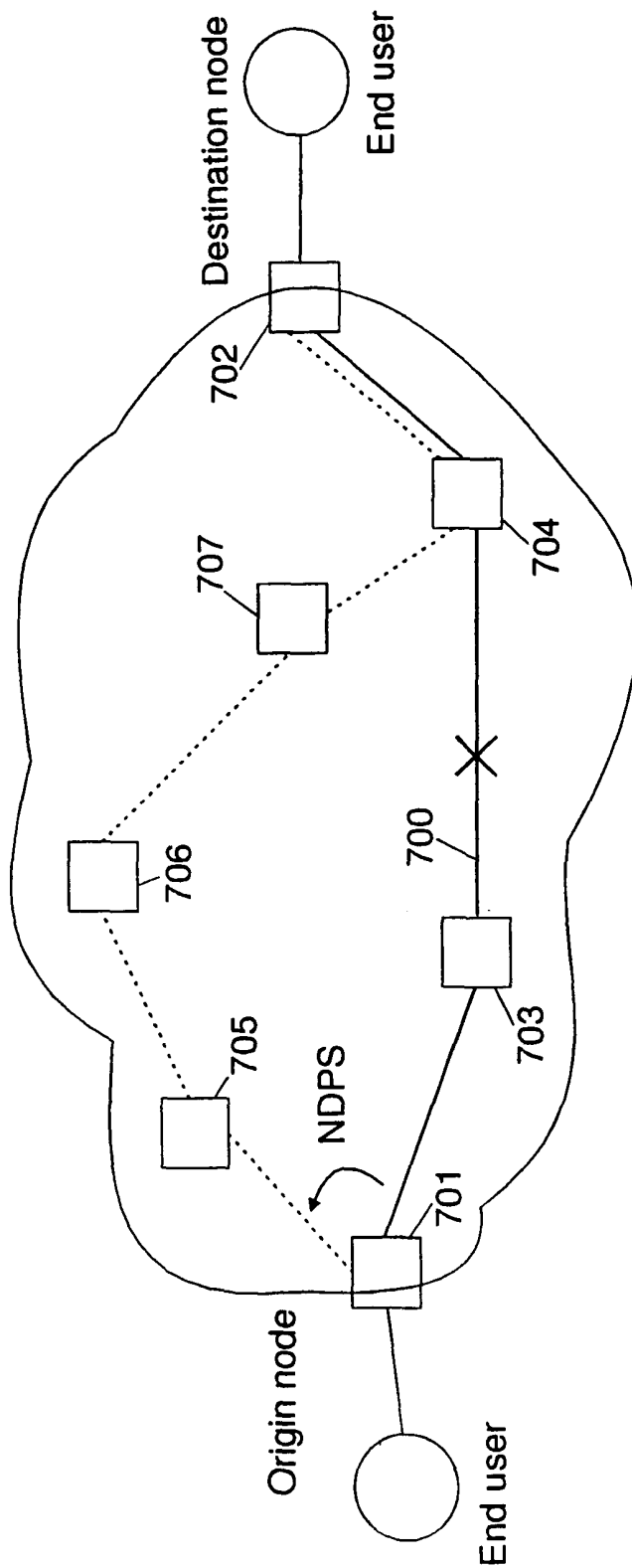
TOPOLOGY DATABASE

Link characteristics

<u>CHARACTERISTIC</u>		<u>LINK VALUES</u>			
<u>NAME</u>	<u>DESCRIPTION</u>	A	B	...	N
C	Total capacity (bps)	C_A	C_B	...	C_N
rf	Reservable fraction (%)	rf_A	rf_B	...	rf_N
\hat{C}_R	Total reserved bandwidth (bps)	$\hat{C}_{R,A}$	$\hat{C}_{R,B}$...	$\hat{C}_{R,N}$
M_{NR}	Total bandwidth used by NR traffic (bps)	$M_{NR,A}$	$M_{NR,B}$...	$M_{NR,N}$
mps	Maximum packet size (bytes)	mps_A	mps_B	...	mps_N

FIG.6

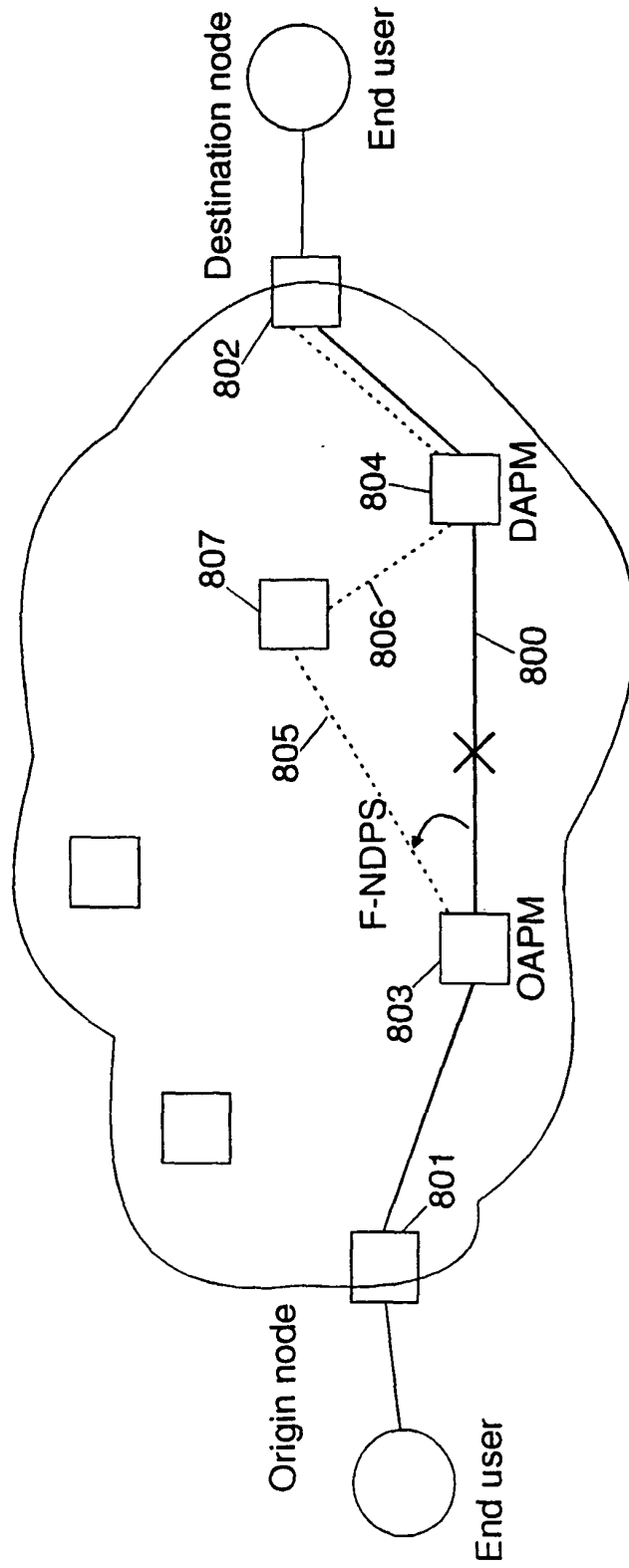
Non Disruptive Path Switching (current)



- End to End Path Switching
- On a per connection basis

FIG.7

Fast Non Disruptive Path Switching



- Backup Path for trunk
- On a per connection basis

FIG.8

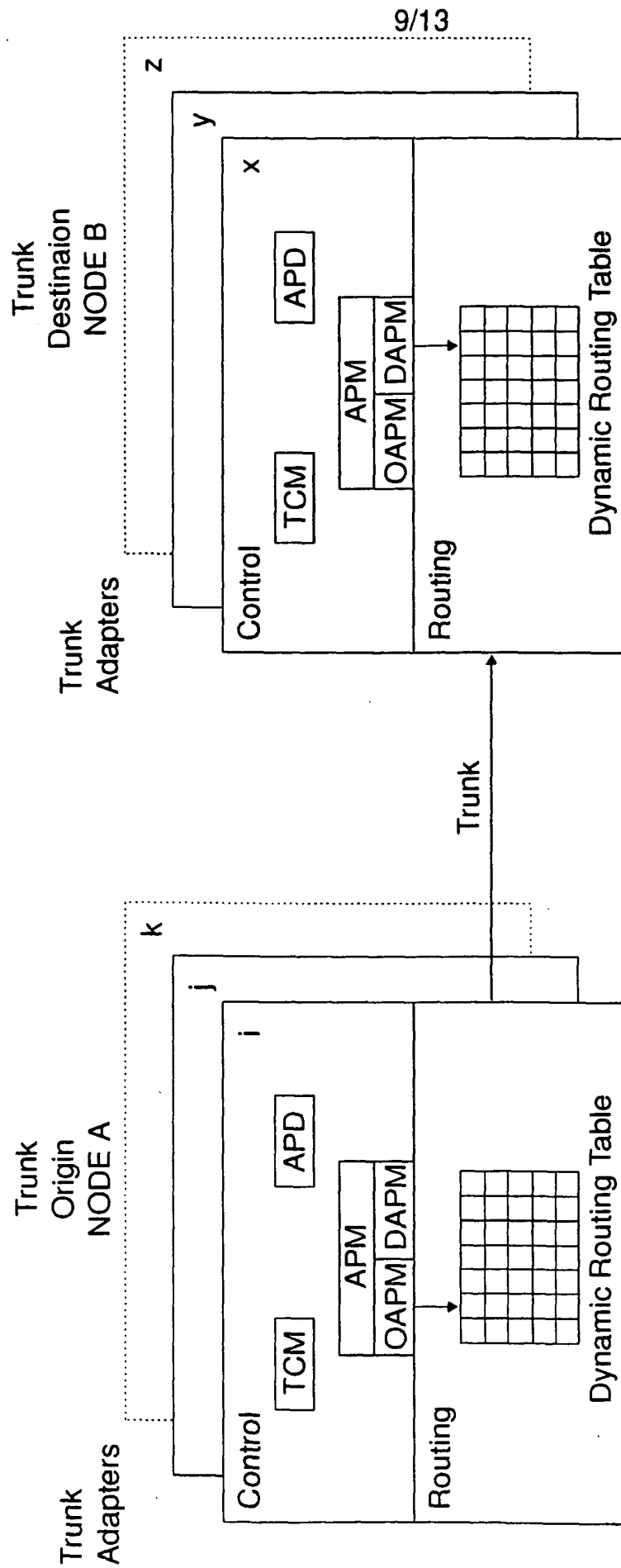
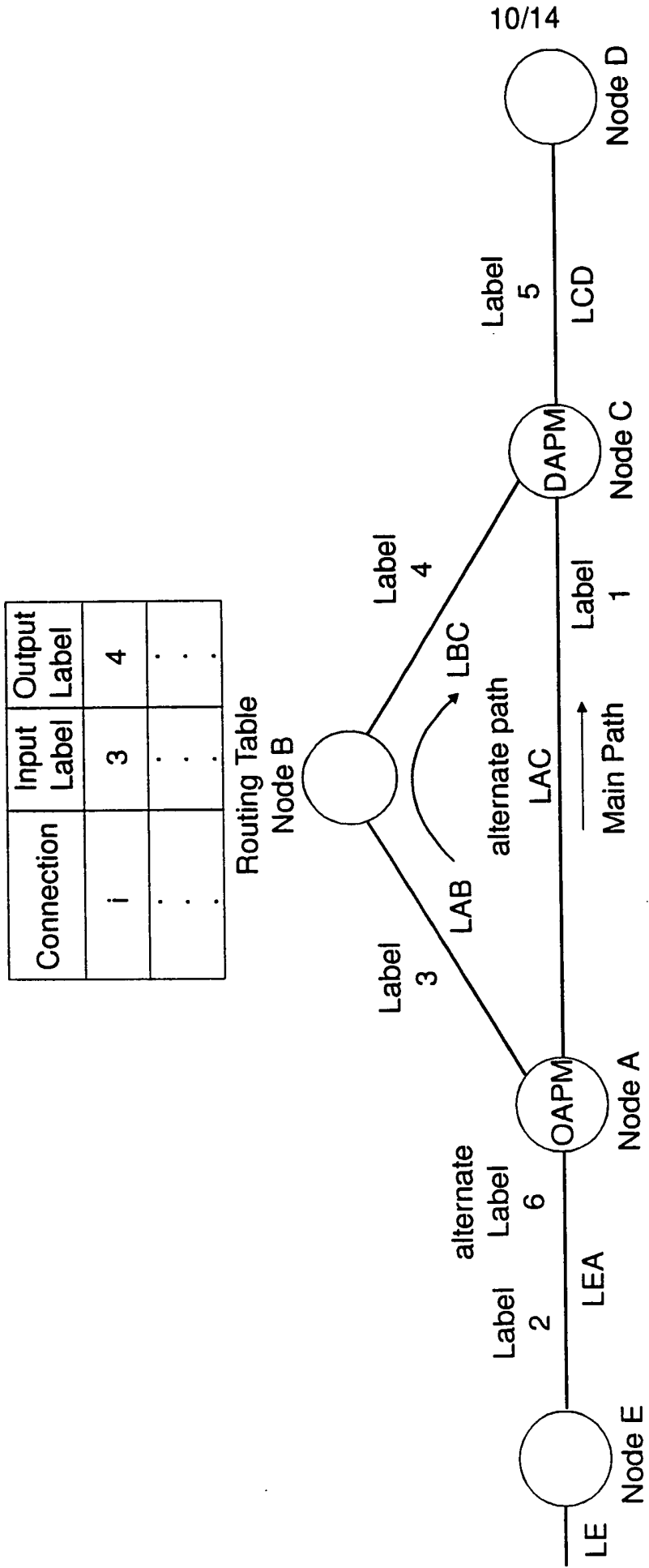


FIG.9



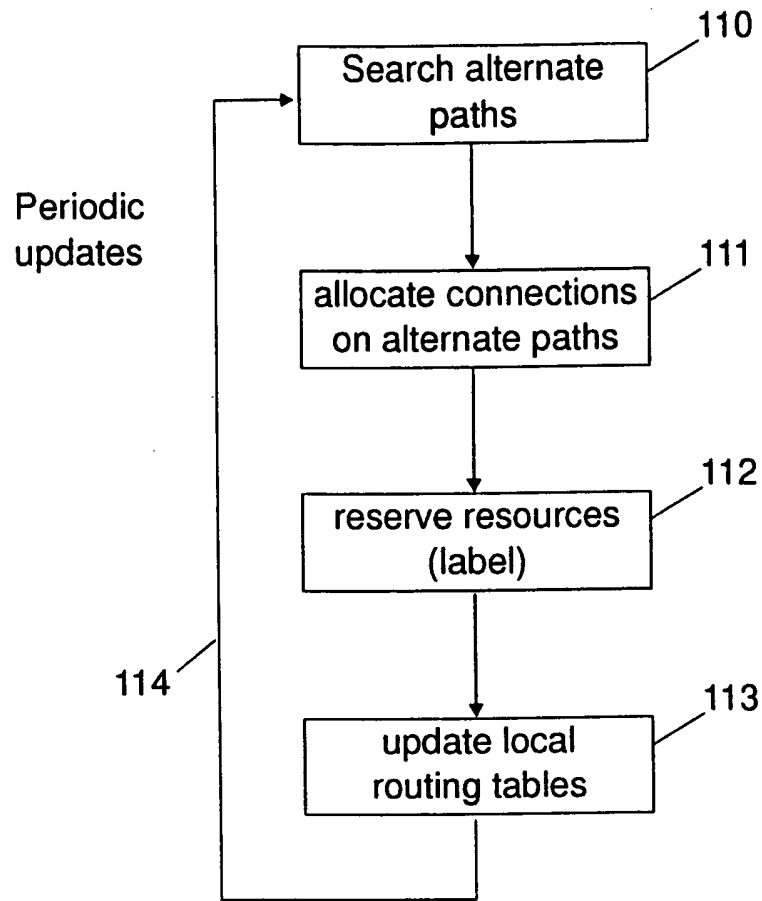
	Connection	Input Label	Output Label
Main Path	i	2	1
Alternate Path	i	6	3
	.	.	.
	.	.	.

Routing Table
Node A

Connection	Input Label	Output Label
i	1	5
.	4	5
.	.	.
.	.	.

Routing Table
Node C

FIG.10

Alternate Paths Manager TasksFIG.11

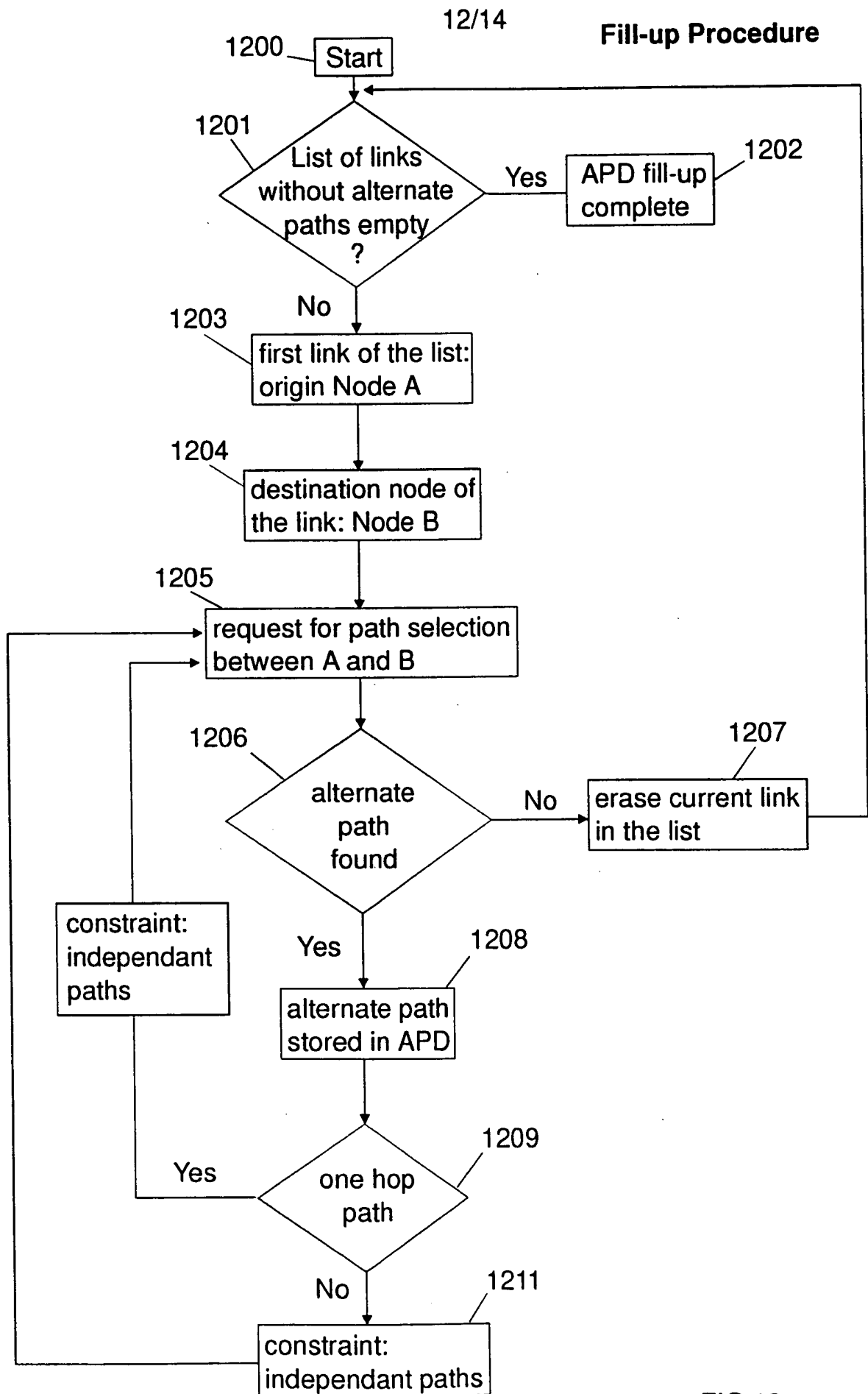


FIG.12

Connection Traffic Initial Allocation

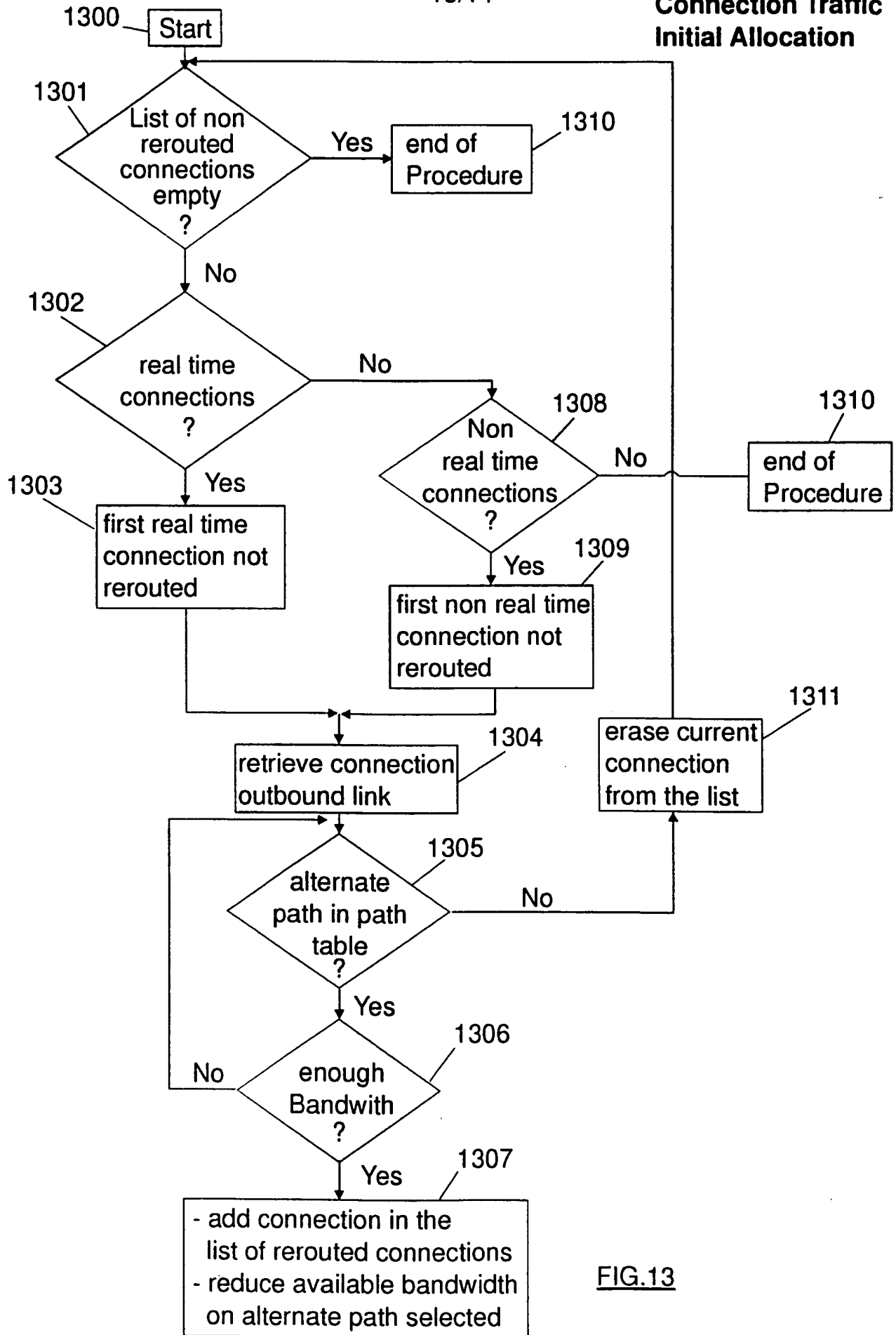


FIG.13

Connection Allocation Update

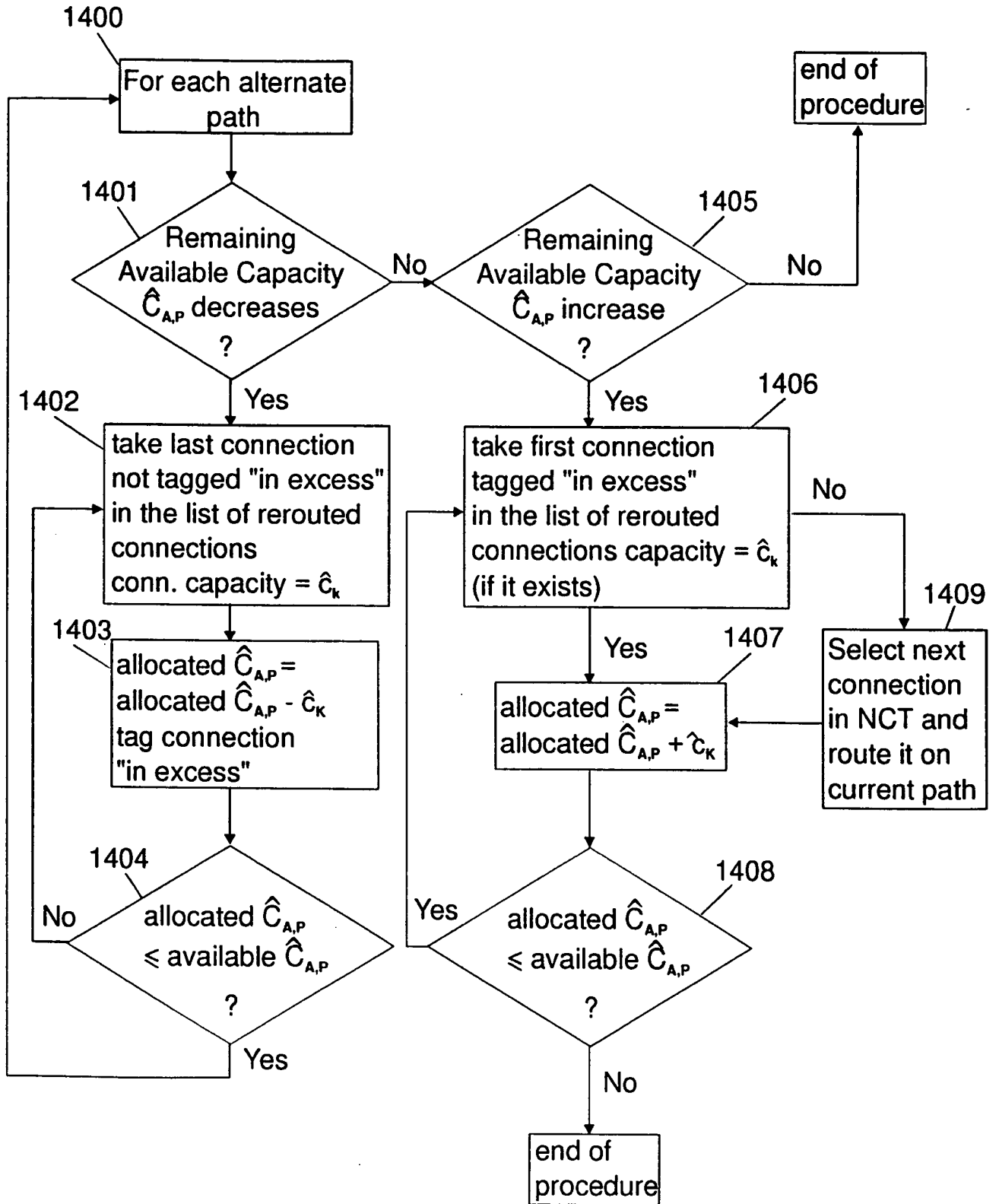


FIG.14